

REMARKS

Claims 1-30 are pending in the application.

Claims 1-30 have been rejected.

Claims 1 was amended to correct a typographic error. Claims 9, 19, and 29 have been amended for purposes of clarification.

Reconsideration of the claims is respectfully requested.

I. CLAIM REJECTIONS -- 35 U.S.C. § 112

Claims 1-30 were rejected under 35 U.S.C. § 112, first paragraph as claiming subject matter that is not described in the specification in a manner enabling one skilled in the relevant art to make or use the claimed invention. This rejection is respectfully traversed.

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. MPEP § 2164.01, p. 2100-193 (8th ed., rev. 4, October 2005). The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. *Id.* A patent need not teach, and preferably omits, what is well known in the art. *Id.* The Patent Office has the initial burden of establishing a reasonable basis to question the enablement provided for the claimed invention. MPEP § 2164.04 at 2100-197. The minimal requirement for a proper enablement rejection is to give reasons for the uncertainty of the enablement. *Id.*

This rejection is based on a misreading or mistaken analysis of the claim language. The Examiner's rejection relies on the statement that "[f]or an irregularly shaped solid, selected a normal to an arbitrary element as a basis for determining thickness would result in multiple thickness values based upon the angle of the element selected." This statement does not reflect the limitations of the claims.

Claim 1 requires identifying a first element in a first wall side of a graphic model, and then traversing the internal body topology to identify a second element in a second wall side of the graphic model. The specification describes, in paragraph 0040, that the traversing is guided by the face normal at a point projected from a point on the surface element, and by the topology of the tetrahedral elements in the mesh. As illustrated in Figure 6, the topology of the tetrahedral elements guides the traversal across the 3D volume mesh, and the traversal then identifies the second element. As clear to those of ordinary skill in the art, traversing the tetrahedral elements of the 3D volume mesh will result in the shortest path even in an irregular solid. The thickness is measured between the identified first and second 2D surface elements, and not simply along a projected line from a surface normal, as alleged by the Examiner.

The traversal and measurement as claimed and described, of course, is much different than simply measuring a projected line from a surface normal, which the Examiner notes could result in multiple thickness values. As the Examiner's rejection relies on an analysis that neither corresponds to the claim language nor to the description in the specification, the §112 ¶1 rejections are traversed. The claims as filed are fully supported and enabled by the specification as filed.

Accordingly, the Applicant respectfully requests the Examiner to withdraw the § 112 ¶1 rejection.

II. CLAIMS REJECTIONS -35 U.S.C. § 112, second paragraph:

Claims 1-30 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter. There are two separate requirements under 35 U.S.C. § 112, second paragraph. MPEP § 2171, p. 2100-211 (8th ed., rev. 4, October 2005). The first is subjective and requires that the claims must set forth the subject matter that the *Applicants* regard as their invention. *Id.* The second is objective and requires that the claims must particularly point out and distinctively define the metes and bounds of the subject matter that will be protected by the patent grant (*i.e.*, whether the scope of the claim is clear to one of ordinary skill in the art). *Id.* The Examiner should explain whether the rejection is based on indefiniteness or on the failure to claim what the Applicants regard as their invention. *Id.* at 2100-212 (*citing Ex parte Ionescu*, 222 U.S.P.Q. 537, 539 (Bd. App. 1984)).

With regard to claim 1, as described above, in some embodiments, the specification describes that the traversing is guided by the face normal at a point projected from a point on the surface element, and by the topology of the tetrahedral elements in the mesh. At any rate, the language of claim 1 is clear and definite, and describes the steps of this embodiment clearly, and would be clearly understood by one of ordinary skill in the art. This rejection appears to be based on the same mistaken analysis as above, and is traversed. The same applies for claims 22 and 21, and these rejections are similarly traversed.

With regard to claims 9, 19, and 29, these claims have been amended to specify that the search is guided by the face normal direction, as described, *e.g.*, at paragraph 0046 of the application as filed. These rejections are therefore believed to be obviated, and are traversed.

Accordingly, the Applicant respectfully requests the Examiner to withdraw the § 112 rejection.

III. CLAIM REJECTIONS -- 35 U.S.C. § 102

Claims 1-30 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,896,303 to *Furkay* hereinafter “Furkay”. This rejection is respectfully traversed.

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. MPEP § 2131, p. 2100-76 (8th ed., rev. 4, October 2005) (*citing In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990)). Anticipation is only shown where each and every limitation of the claimed invention is found in a single prior art reference. *Id.* (*citing Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987)).

Claim 1 requires:

- A method for determining the thickness of a wall of a graphic model, comprising:
 - loading a graphic model;
 - generating a surface mesh on the faces of the model;
 - generating an internal body topology of the graphic model, corresponding to the surface mesh;
 - identifying a first element in a first wall side of the graphic model;
 - traversing the internal body topology to identify a second element in a second wall side of the graphic model;

measuring the distance between the first element and the second element; and
storing a wall thickness, the wall thickness corresponding to the measured distance.

Furkay does not teach or suggest generating an internal body topology of a graphic model, as required by claims 1, 11, and 21, and the Office Action does not allege any such teaching. As such, there is not even a *prima facie* anticipation rejection, and the rejection of these claims is traversed.

Furkay does not teach or suggest identifying a first element in a first wall side of the graphic model, as required by claims 1, 11, and 21, and the Office Action does not allege any such teaching. As such, there is not even a *prima facie* anticipation rejection, and the rejection of these claims is traversed.

Furkay does not teach or suggest traversing the internal body topology to identify a second element in a second wall side of the graphic model, as required by claims 1, 11, and 21, and the Office Action does not allege any such teaching. As such, there is not even a *prima facie* anticipation rejection, and the rejection of these claims is traversed.

Furkay does not teach or suggest storing a wall thickness, as required by claims 1, 11, and 21, and the Office Action does not allege any such teaching. As such, there is not even a *prima facie* anticipation rejection, and the rejection of these claims is traversed.

Claim 9 requires:

A method for determining the thickness of a wall of a graphic model, comprising:
identifying a first element in a surface mesh of a model;
projecting the first element onto a face of the model to identify a first projected point;
determining a face normal direction at the projected point;

searching for a second element in the surface mesh of the model,
guided by the face normal direction;
identifying the second element in the surface mesh of the model;
projecting the second element onto a face of the model to identify a
second projected point; and
determining the distance between the first element and the second
element.

Furkay does not teach or suggest projecting the first element onto a face of the model to identify a first projected point, as required by claims 9, 19, and 29, and the Office Action does not allege any such teaching. As such, there is not even a *prima facie* anticipation rejection, and the rejection of these claims is traversed.

Furkay does not teach or suggest determining a face normal direction at the projected point, as required by claims 9, 19, and 29, and the Office Action does not allege any such teaching. As such, there is not even a *prima facie* anticipation rejection, and the rejection of these claims is traversed.

Furkay does not teach or suggest projecting the second element onto a face of the model to identify a second projected point, as required by claims 9, 19, and 29, and the Office Action does not allege any such teaching. As such, there is not even a *prima facie* anticipation rejection, and the rejection of these claims is traversed.

Accordingly, the Applicant respectfully requests the Examiner to withdraw the § 102 rejection with respect to these claims.

All rejections are traversed; prompt reconsideration and allowance are respectfully requested.

CONCLUSION

As a result of the foregoing, the Applicant asserts that the remaining Claims in the Application are in condition for allowance, and respectfully requests an early allowance of such Claims.

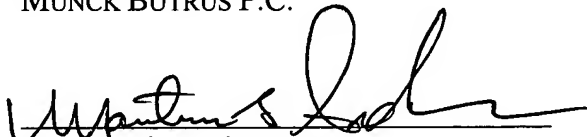
If any issues arise, or if the Examiner has any suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *manderson@munckbutrus.com*.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

MUNCK BUTRUS P.C.

Date: 12/30/06


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